

DOCUMENT RESUME

ED 102 111

SP 008 891

AUTHOR Morine, Greta
TITLE Basic Teaching Skills: Identification of Preactive Skills.
NOTE 19p.
EDRS PRICE MF-\$0.76 HC-\$1.58 PLUS POSTAGE
DESCRIPTORS *Behavioral Objectives; Cognitive Development; *Decision Making Skills; *Educational Alternatives; *Teacher Behavior; *Teaching Skills; Teaching Styles
IDENTIFIERS *Piaget (Jean)

ABSTRACT

This paper approaches the task of defining basic teaching skills by identifying essential preactive skills. Piaget's model of cognitive development was used to determine the general goal of teacher training in preactive skills, to identify the three basic kinds of preactive skills necessary for teachers to learn, and to suggest the kinds of instructional processes to achieve the goal of changing the cognitive functioning of teachers so that they begin to move from the concrete operational level of development toward the formal operational level in their preactive teaching behavior. The three basic kinds of preactive skills identified were generating alternatives, selecting among alternatives, and altering existing circumstances. Specific behavioral objectives subsumed to each of these skills are presented. The instructional processes suggested to achieve these goals capitalize on the developmental processes of socialization and equilibration. The types of training materials to be developed to implement these processes provide background information on new instructional alternatives, simulated data on the given affecting instructional decision making, and peer interaction regarding contradictory instructional decisions. (PD)

BASIC TEACHING SKILLS: IDENTIFICATION OF PREACTIVE SKILLS

U.S. DEPARTMENT OF HEALTH
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY.

Greta Morine

The Developmental Approach

EMPIRIA KANSAS STATE COLLEGE
TEACHER CLINIC
RESOURCE CENTER
ITEM NO. 672
FOR INSPECTION ONLY.

The preactive behavior of the teacher has been perceived as basically a rational, problem-solving kind of behavior ever since Philip Jackson coined the term in Life in Classrooms. It would be a relatively simple task to identify the skills required in any type of logical problem solving (e.g., hypothesis-formation and hypothesis testing) and to apply these to the particular kinds of problems that teachers deal with.

The difficulty with this approach is that teachers don't really solve problems by forming hypotheses and testing them. In fact, much of the planning that teachers do is never perceived by them as a "problem" to be solved at all. It is simply a routine activity.

There is a wide gap between the highly rational, logical behavior envisioned by educational theorists as the epitome of effective educational planning and the kind of routine management behavior that teachers actually engage in when they are planning lessons. It is a gap that is not easily bridged. The developmental approach to teacher education would suggest that teacher training should not attempt to bridge the gap completely during a brief period, such as a year of pre-service work. What is needed is the beginning of a solid structure (bridge) that the teacher can continue to construct independently when his training has ended (either temporarily or permanently).

The eventual goal of teacher training, viewed from the developmental perspective, is to change the cognitive functioning of teachers so that their preactive behavior more closely approaches a logical model. To relate this goal to Piaget's theory of cognitive development, it could be viewed as an attempt to train teachers to operate at the formal level of cognition in their preactive

ED102111

148 83220

teaching. The present state of affairs with most in-service and pre-service teachers is that they are operating at the concrete level in their daily planning of instruction. The task is to bring to bear developmental processes that will move teachers away from functioning at the concrete level and toward functioning at the formal level.

The developmental processes which could be brought to bear are the processes of socialization and equilibration. Socialization, according to Piaget, involves an increasing awareness of the perceptions of reality held by other people. This awareness results from exposure to perceptions that differ from one's own. Equilibration involves a series of adjustments between the cognitive structures of the individual and the reality that surrounds him. These adjustments occur as a result of perceived discrepancies between cognitive structures and reality.

The crucial element in applying developmental processes, then, would be to create cognitive dissonances. The teacher would be asked to state a perception, an analysis, or a solution for a particular problem. He would then be presented with data that conflicted in some way with the position he had taken. This conflict could cause him to reexamine his perceptions of the problem and adapt his thinking somehow to the newly perceived problem. A continuing process of adaptation and readaptation would operate to change the cognitive structure of the individual so that he began to move toward the level of formal thought.

The basic cognitive skills that might characterize the individual in a transitional stage of development between concrete and formal operations are identified for the purposes of this paper as: 1) skills in generating alternatives; 2) skills in selecting among alternatives; 3) skills in altering existing circumstances. The critical nature of these skills in terms of the developmental process will be explained, and further specification of skills will be attempted in the section which follows.

The three basic preactive teaching skills to be discussed here (generating alternatives, selecting among alternatives, and altering existing circumstances) were identified by noting differences between the behavioral characteristics of individuals at the formal stage of operations and those at the concrete stage of operations. The three skills selected are behaviors related to logical problem-solving and are transitional behaviors that could bridge the two stages of cognitive functioning.

Generating Alternatives

The most salient characteristic of the individual at the formal operations stage of cognitive development is that he is able to generate alternatives. Not just a limited number of alternatives, but all the logical possibilities, including those which seem impossible on the basis of his own experience with reality.

The individual who is at the cognitive level of concrete operations can hypothesize, but he tends to treat the hypothesis he has produced as a fact, rather than as an idea to be tested. At this developmental stage he can also handle "if -, then -" propositions, when the antecedent phrase is true or is something which he has experienced. He has difficulty with this form of logic when the antecedent phrase is false, or is something outside his own realm of experience.

As an individual moves from the stage of concrete operations into the stage of formal operations, his thinking will be characterized by the ability to generate larger numbers of alternatives and to deal with the probable consequences of both the probable and the improbable "if..."

To facilitate the individual's development in this direction he must first be provided with an expanded base of knowledge and experience, so that more and more alternative possibilities become visible to him. He must next be moved from a behavior pattern of developing the one best (or simplest or most manageable) solution to a problem, toward a behavior pattern of producing several possible

To apply this developmental process to teacher training in the area of pre-active skills, we must first ask:

what kinds of alternatives do teachers need to be able to generate?

what are the givens or the "ifs" with which they must deal?

One way of explicating the skill of generating alternatives would be to state it as a general objective. For example,

Given a real or simulated classroom assignment, the teacher will generate alternatives of the following types:

- a. alternative means of diagnosing pupil attainment levels
- b. alternative sub-groupings of children for instruction
- c. alternative learning outcomes, stated in behavioral terms
- d. alternative instructional resources to be used
- e. alternative instructional strategies to be used
- f. alternative classroom arrangements to be used
- g. alternative means of acquiring feedback from children
- h. alternative means of providing feedback to children

The givens with which teachers must deal would vary from one set of alternative decisions to another. To identify the givens or "ifs" upon which preactive decisions are based, we can state a series of specific behavioral objectives that are related to the general objective stated above. The basic objective is to develop skill in generating several alternative possibilities in response to any given problem. In stating the specific objectives that follow, the "magic" number three, which is used throughout, was selected somewhat arbitrarily because it seemed to be large enough to stretch the imagination and small enough to be attainable.

1. Given a group of children or an individual child, a subject matter area, and a concept or skill to be learned, the teacher will generate at least three alternative means of diagnosing pupil attainment levels (e.g., teacher constructed pretest or analysis of previous written assignments).
2. Given information on skill attainment or concept attainment in a particular subject matter area for a group of children, the teacher will generate at least three alternative sub-groupings of children for the next learning sequence (e.g., high achiever works in partnership with low achiever or all low achievers grouped together).
3. Given information on skill attainment or concept attainment in a particular subject matter area for a group of children or an individual child, the teacher will generate at least three alternative learning outcomes, stated in behavioral terms, for the next learning sequence (e.g., given several examples of one

syllable words containing short vowel sounds and long vowel sounds followed by a consonant and silent e, children will discover and state the phonetic rule that applies.

or

given the phonetic rule that one-syllable words ending in a consonant and silent e contain a long vowel sound, children will correctly read a list of new words that follow this rule).

4. Given a desired learning outcome for a group of children or an individual child, the teacher will generate at least three alternative instructional resources which could be used (e.g., a filmstrip or a feltboard to teach concept of sets).
5. Given a desired learning outcome for a group of children or an individual child, the teacher will generate at least three alternative instructional procedures (teaching strategies or lesson models) that could be used (e.g., prescriptive lesson or inductive discovery lesson to teach commutativity property of addition).
6. Given a desired learning outcome and a particular instructional resource to be used for a group of children or an individual child, the teacher will generate at least three alternative instructional procedures (teaching strategies or lesson models) that could be used (e.g., analysis of film contents through a directed discussion or a Rogerian discussion).
7. Given a desired learning outcome and a particular instructional procedure (teaching strategy or lesson model) for a group of children or an individual child, the teacher will generate at least three alternative instructional resources which could be used (e.g., manipulative materials or a worksheet to teach a discovery lesson on commutativity).
8. Given a desired learning outcome, a particular instructional resource, and a particular instructional procedure to be used with a group of children or an individual child, the teacher will generate at least three alternative classroom arrangements (seating, work areas, etc.) that might be used (e.g., seating children in small clusters or in a large semi-circle for Rogerian discussion of film contents).
9. Given a desired learning outcome, a particular instructional resource, and a particular instructional procedure or strategy to be used with a group of children or an individual child, the teacher will generate at least three alternative means of acquiring feedback from the children during the lesson, regarding the extent of learning that is occurring (e.g., children writing answers on individual chalkboards or giving verbal answers to questions in a prescriptive lesson on the possessive morpheme).
10. Given a desired learning outcome, a particular instructional resource, and a particular instructional procedure or strategy to be used with a group of children or an individual child, the teacher will generate at least three alternative means of acquiring feedback from the children after the lesson, regarding the extent of learning that has occurred (e.g., a teacher-constructed post-test or analysis of a creative writing assignment to evaluate learning of a spelling rule).

11. Given a desired learning outcome, a particular instructional resource, and a particular instructional procedure or strategy to be used with a group of children or an individual child, the teacher will generate at least three alternative means of providing feedback to the children during the lesson, regarding the extent of learning that is occurring (e.g., asking other children to evaluate a generalization stated by one child or providing new data to test the generalization in a discovery lesson).
12. Given a desired learning outcome, a particular instructional resource, and a particular instructional procedure or strategy to be used with a group of children or an individual child, the teacher will generate at least three alternative means of providing feedback to the children after the lesson, regarding the extent of learning that has occurred (e.g., writing positive comments on children's papers or reading papers aloud to class following a lesson on writing Haiku poetry).

Implementation of these objectives in a teacher training program might take various forms. Students would probably have to move through several stages of skill development in learning to generate several alternative solutions to a problem. For example, an early stage might involve having the student generate one solution to a problem, then confronting him with additional information that makes his solution questionable or untenable, and requiring him to generate a new solution taking account of the new information. Another stage might involve small groups of students working or brain-storming together to generate several alternative solutions to a problem. To exemplify a possible training strategy, an instructional module that utilizes the first procedure mentioned above to have students deal with alternative means of providing feedback to children after a lesson (objective 12 above) is included as an appendix to this paper.

Selecting Among Alternatives

Decisions about which of several alternatives to choose invariably involve value judgments. The individual at the concrete operational stage of development tends to be governed very closely in such decision-making by the rules of the system, or by the authorities in his field. At the formal operations stage the individual tends to be much more flexible in making value judgments. He has developed a value system of his own and is usually guided by this rather than

by the social system in which he finds himself. He judges each new situation on its own relative merits, not in terms of some hard and fast rule.

The process which facilitates development from one stage to another in this area is the process of socialization. Discussion and argument with other people holding differing points of view lead to an awareness that a variety of values exist in the world, as well as contributing to a clarification of the individual's values in his own mind.

To apply this developmental process to teacher training, it would seem important to expose the teacher to conflicting or contradictory value systems and to ask him to compare the conflicting values to his own. The skill to be developed in this process, that of selecting among alternatives, can be stated in the form of a general objective. For example,

Given a set of alternative ways of dealing with a real or simulated classroom problem, the teacher will select the two alternatives he prefers, and will identify the value judgments underlying his decision. When presented with a conflicting decision by a peer, the teacher will identify the similarities and differences between the two sets of value judgments. The teacher will demonstrate mastery of this objective in relation to the following types of classroom decisions:

- a. alternative means of diagnosing pupil attainment levels
- b. alternative sub-groupings of children for instruction
- c. alternative learning outcomes, stated in behavioral terms
- d. alternative instructional resources to be used
- e. alternative instructional strategies to be used
- f. alternative classroom arrangements to be used
- g. alternative means of acquiring feedback from children
- h. alternative means of providing feedback to children

The objective stated here specifies selection of two of the possible alternatives, rather than one, because the major goal is to have the teacher seriously consider more than one option to a given problem. The specific behavioral objectives related to this general objective would vary from one another only in terms of the set of alternatives being dealt with and the possible value judgments to be expressed. A sample set of specific objectives might read as follows:

13. Given a set of alternative means for diagnosing pupil attainment levels in a particular subject matter area, the teacher will select the two means that he prefers and will identify the value judgments underlying his decision (e.g., he prefers to analyze written assignments because he values performance in the "real" world over performance on tests).

When presented with a conflicting decision by a peer regarding preferred means of diagnosing pupil attainment, the teacher will identify similarities and differences between the two sets of value judgments.

14. Given a set of alternative groupings of children for a particular learning sequence, the teacher will select the two groupings which he prefers and will identify the value judgments underlying his decision (e.g., he prefers to group a high achiever in partnership with a low achiever because he values social service, and believes that those with ability should use it to help others).

When presented with a conflicting decision by a peer regarding preferred means of grouping children, the teacher will identify similarities and differences between the two sets of value judgments.

15. Given a set of alternative learning outcomes for a particular learning sequence, the teacher will select the two outcomes which he prefers and will identify the value judgments underlying his decision (e.g., he prefers to have children discover a rule because he values independent thinking).

When presented with a conflicting decision by a peer regarding preferred outcomes, the teacher will identify similarities and differences between the two sets of value judgments.

16. Given a set of alternative instructional resources to be used for achievement of a particular learning outcome, the teacher will select the two resources that he prefers and will identify the value judgments underlying his decision (e.g., he prefers to use manipulative materials to teach commutativity because he values research and theory, which indicates that cognitive development occurs as a result of physical manipulation of the environment).

When presented with a conflicting decision by a peer regarding preferred resources, the teacher will identify similarities and differences between the two sets of value judgments.

17. Given a set of alternative instructional procedures or strategies to be used for achievement of a particular learning outcome, the teacher will select the two strategies that he prefers and will identify the value judgments underlying his decision (e.g., he prefers to conduct Rogerian discussion because he values non-authoritarian relationships with children).

When presented with a conflicting decision by a peer regarding preferred strategies, the teacher will identify similarities and differences between the two sets of value judgments.

18. Given a set of alternative classroom arrangements to contribute to a particular learning outcome, the teacher will select the two arrangements that he prefers and will identify the value judgments underlying his decision (e.g., he prefers to seat children in a large semi-circle because he values his own knowledge of

children's ideas and wants to hear all the ideas expressed).

When presented with a conflicting decision by a peer regarding preferred classroom arrangements, the teacher will identify similarities and differences between the two sets of value judgments.

19. Given a set of alternative procedures for acquiring feedback from children during or after a particular lesson, the teacher will select the two procedures that he prefers and will identify the value judgments underlying his decision (e.g., he prefers to have children write answers to questions on individual chalkboards because he values a non-competitive atmosphere and wants to avoid having children compare their responses to others in the class).

When presented with a conflicting decision by a peer regarding preferred procedures for acquiring feedback, the teacher will identify similarities and differences between the two sets of value judgments.

20. Given a set of alternative procedures for providing feedback to children during or after a particular lesson, the teacher will select the two procedures that he prefers and will identify the value judgments underlying his decision (e.g., he prefers to provide new data so that a child may test his own generalization because he values self-evaluation and wants the child to learn this process).

When presented with a conflicting decision by a peer regarding preferred procedures for providing feedback, the teacher will identify similarities and differences between the two sets of value judgments.

The objectives stated above would contribute to the socialization process, requiring the teacher to attend more closely to contradictory points of view and to clarify his own values. This should facilitate development of the individual value system, approaching that which is characteristic of the formal operations stage.

Implementation of these objectives could be very closely related to implementation of the objectives dealing with generating alternatives. Development of this skill would also move through several stages. An early stage might involve having the teacher trainee merely identify peer judgments that differed from his own. Another stage might involve having him report changes in his own judgments that have been caused by discussion with his peers.

The instructional module which is appended to this paper, to exemplify a possible training strategy, permits the student to respond in either of the above ways. It also relates development of skills in generating alternatives to development of skill in selecting among alternatives by providing for peer discussion and

comparison of instructional decisions made independently in response to a simulated situation.

Altering Existing Circumstances

Decisions about alternatives also involve a determination of which alternatives are viable ones, and which of the apparent restrictions or prohibitions relative to the situation are real. The individual at the concrete stage of development tends to accept all apparent restrictions as solid, immutable facts. The number of alternatives which appear viable to him is thus drastically reduced. At the formal operations stage the individual looks for detours around apparent prohibitions. Consequently, the number of alternatives which appear viable to him remains relatively substantial.

An important task in encouraging movement from the concrete to the formal stage would be to help the teacher learn techniques to alter or circumvent some of the apparent restrictions in a given situation, so that he could begin to perceive many more viable alternatives.

Another set of objectives would be necessary to promote learning of such techniques. The number of types of restrictions that the teacher might learn to alter or circumvent is relatively large. Diagnostic tools available, grouping procedures used for classroom assignments, instructional objectives of the school and community, instructional materials provided, the physical plant, and grading procedures are basic restrictions corresponding to the skills discussed previously.

The scope of this paper precludes attempting to deal with all of these factors in detail. But one important factor which teachers tend to treat as a critical restriction will be dealt with, as an illustration of how one might proceed to develop behavioral objectives for this general purpose. The factor to be considered here is that of the instructional materials which are provided for the teacher to use.

Adapting instructional materials. An important characteristic of the individual at the concrete operational stage of cognitive development is that he is closely tied to reality, to what presently exists in his world. If he is asked to create something, his tendency is to try to replicate something that is already familiar to him.

The comparable characteristic of the individual at the formal operational stage is that he can invent new ideas and new relationships that do not already exist in his reality. One of the ways that he invents is through the use of analogy, taking something that exists in one realm and transforming it to serve a different purpose in a new realm.

The individual's development from one stage to the next is a process of moving from a behavior pattern of being basically accommodative or imitative in his use of reality to a behavior pattern of being more assimilative or imaginative in his use of reality. This is accomplished through a process of equilibration, or a series of small mental adaptations of (and to) reality.

To apply this developmental process to teacher training in the area of use of materials, it would seem that the task would be to get teachers to begin using adaptive behaviors. This skill can be stated in the form of a general objective. For example,

Given a particular instructional resource for use in a real classroom, the teacher will adapt it in the following ways:

- a. for use with a different instructional strategy
- b. for use in a different format
- c. for achievement of a different learning outcome
- d. for use in a different subject matter area
- e. to improve the probability of children's attainment of the concept the material is designed to teach

The specific behavioral objectives related to this objective could be stated as follows:

21. Given a particular instructional material designed for use with a particular instructional procedure, the teacher will adapt the material for use with a different instructional procedure (e.g., prescriptive method to discovery method).
22. Given a particular instructional material designed for use in a particular format, the teacher will adapt the material for use in a different format (e.g., individual instruction to group instruction).

BEST COPY AVAILABLE

21. Given a particular instructional material designed for achievement of a particular learning outcome, the teacher will adapt the material for achievement of a different learning outcome (e.g., cognitive objective to affective objective).
22. Given a particular instructional material designed for use in a particular subject matter area, the teacher will adapt the material for use in a different subject matter area (e.g., social studies to language arts).
23. Given a particular instructional material inadequately designed for attainment of a particular concept by a particular group of children or an individual child, the teacher will adapt the material to improve the probability of concept attainment (e.g., add more examples or data to increase speed of concept attainment).

Summary

When teacher training is viewed as a developmental process, focussing on transition from the concrete operational to the formal operational stage of cognitive functioning, the most essential aspects of preactive teaching skills would appear to be ability to generate alternatives, ability to select among alternatives, and ability to adapt or alter existing circumstances (such as instructional materials). The types of alternatives with which teachers would be trained to deal include: diagnosis, grouping, learning outcomes, instructional resources, instructional procedures, classroom arrangements, acquiring feedback, and providing feedback. Three general objectives that might lead to development of the three basic preactive skills have been stated. Twenty-five specific behavioral objectives related to these general objectives have also been suggested.

Developing Training Materials

If the preactive teaching skills identified in the foregoing section were accepted as legitimate goals for teacher training, then certain training materials would be required to implement these goals. Three types of materials would be essential in a training program designed for developmental growth in cognitive functioning. These would be:

1. materials providing background information on new instructional alternatives
2. materials providing simulated data on the "givens" affecting instructional decisions
3. materials providing peer interaction regarding contradictory instructional decisions.

BEST COPY AVAILABLE

The relationship between the previously identified teaching skills and these three types of training materials will be explored briefly here, with the hope that this can provide some preliminary guidelines for the evaluation, refinement, and development of materials for training in preactive teaching skills.

Materials Providing Background Information

In a competency-based teacher education program where competencies are stated in terms of ability to generate alternatives, the teacher trainees will have a great deal of incentive to learn about a variety of instructional programs, instructional tools, instructional strategies, etc. This kind of background information can be provided in a variety of ways.

The more traditional forms of curriculum materials such as textbooks, lectures, and class discussions could be utilized here. Directed observation in selected classroom settings or directed study of existing instructional materials for children could also be useful.

Some of the teacher training materials currently under development might provide guidelines as to appropriate formats for new materials in this category. For example, the Information Units being produced at the Far West Laboratory should be effective in acquainting teachers with new alternatives in the area of instructional resources. In addition, the format used in the Information Units might well provide a prototype for development of materials providing information on alternatives in the areas of diagnostic procedures and means of acquiring feedback from children after a lesson.

The protocol materials being developed in various institutions, including the Far West Laboratory, should be effective in providing information on alternative instructional procedures and alternative means for acquiring feedback from children or providing feedback to children during a lesson.

The numerous materials already developed for training teachers to state specific behavioral objectives and identify criterion measures could form the basis

BEST COPY AVAILABLE

for new materials designed to provide information on possible alternative objectives and alternative means of providing feedback to children after a lesson.

A primary characteristic of all materials developed in this category would be that the information be provided in an objective fashion. Since the intent would be to increase the number of visible alternatives, a material providing information on one alternative should not do so at the expense of other alternatives. A book or film presenting a particular instructional strategy in a propagandistic fashion, for example, might tend to open up one new alternative and close off one or more old or familiar alternatives. This would not be a desirable result.

Materials Providing Simulated Data

In a teacher training program where the skills to be attained are stated in terms of certain "givens," it will be expedient, if not necessary, to provide training materials where the givens can be controlled in some fashion, at least in the initial stages of training. The most obvious method of achieving this is to use simulated materials.

Many of the simulated materials which have already been developed focus on skills in interactive decision-making, as for example Cruickshank's Inner-City Simulation Laboratory, published by Science Research Associates, and Paul Twelker's Classroom Management Simulation System, distributed by Oregon's Teaching Research Division. What would be needed would be materials which focus more on the preactive decision-making process, but the general format used need not vary too greatly.

Teacher trainees would be given controlled or selected information about a child or a group of children, and asked to make a preactive instructional decision on the basis of that information. The generation of alternative decisions could be handled in various ways.

One way would be to have individual teachers make decisions independently, and then pool their ideas in group discussion, providing each individual with additional ideas on possible alternatives. This method would be similar to that used in the Cruickshank materials.

Another way would be to use a programmed format. Individual teachers would make decisions independently and would then be presented with prepared materials providing information on several alternative solutions to the same problem. This method would be similar to that used by Twelker, except that several possible answers would be provided instead of just one.

A third way would be to use the individual teacher's independent decision as a diagnostic tool. The teacher would be asked to provide several different decisions in response to the same set of givens. These responses would be studied to determine what alternatives the teacher was already aware of, and an instructional program could then be designed to provide the teacher with information on other alternatives that were unfamiliar to him.

Simulated materials would also be useful for training in the area of adapting or altering existing circumstances. Paul Twelker's Discovery Teaching Game would be an example of an existing material which serves this purpose to some extent. Many of the problems used as exercises in this game have to do with altering the attitudes of other teachers, or of parents and children, toward the discovery process.

A critical characteristic of all materials developed in this category would be that the simulated data provided as the "givens" for any particular problem be structured to encourage divergent responses. For example, if the problem is to generate learning outcomes in mathematics for a group of fifth grade children, the information provided on their current concept attainment in that area should be designed to make several different instructional objectives seem appropriate as the next step.

Materials Providing Peer Interaction

In a teacher training program organized around a developmental theme, the provision of repeated confrontations with contradictory viewpoints (a continuing series of cognitive dissonances) will be an important factor. Training materials that emphasize peer interaction and discussion of instructional decisions can help

to provide these contradictions. **BEST COPY AVAILABLE**

The emphasis on peer interaction is a vital one. Traditionally teacher trainees have been presented with viewpoints contradictory to their own, but these contradictory viewpoints have usually emanated from authorities (university professors, school principals, nationally known educators, textbook writers, etc.) rather than from their peers. There are two disadvantages to this process. One, the authorities can be easily discounted if the contradictions are disturbing, because "none of the authorities know what it's like in the real world of the classroom." Two, if the authority's viewpoint is readily accepted, this does not contribute much to the cognitive development of the individual teacher, because he is not thinking for himself or reexamining his own value system. The new viewpoint so readily accepted will be as readily discarded when the next authority presents another new viewpoint. Contradictions from authorities are not particularly useful in the process of cognitive development, for these reasons. Contradictions from peers can thus contribute to cognitive development in a unique way.

Most of the available materials for teacher education which utilize peer discussion are designed to develop particular attitudes or values at the same time that they impart particular instructional skills. The Northwest Laboratory materials on Facilitating Inquiry in the Classroom, Development of Higher Level Thinking Abilities, and Interpersonal Communication are cases in point. The Human Relations Training Unit, developed by the Far West Laboratory, and distributed by the Anti-Defamation League might provide a better prototype for a format for materials in this category area, but obviously this material is also designed to develop attitudes of a particular type.

It is undoubtedly impossible to develop value-free materials for teacher training, but it would seem to be important to develop some that allow the teacher more freedom to explore his own values in relation to the values of his peers without the imposition of an external (authority-sanctioned) viewpoint that is deemed correct.

To facilitate the operation of a teacher education program designed for developmental growth in the cognitive functioning of teachers, some new training materials would need to be developed. Three types of materials have been identified here, as well as some preliminary criteria for evaluation of materials.

Materials providing background information on new instructional alternatives would need to provide information in a very objective fashion. Materials providing simulated data on the givens affecting instructional decisions would need to be structured to encourage divergent responses. Materials providing peer interaction regarding contradictory instructional decisions would need to minimize the imposition of authority-sanctioned viewpoints. The instructional module appended to this paper is a preliminary attempt at satisfying some of these criteria.

Conclusion

This paper has approached the task of defining basic teaching skills by attempting to identify essential preactive skills. Piaget's model of cognitive development was used to determine the general goal of teacher training in preactive skills, to identify the three basic kinds of preactive skills necessary for teachers to learn, and to suggest the kinds of instructional processes that might be used to achieve this goal.

The general goal of teacher training in preactive skills, as determined on the basis of Piaget's theory, would be to change the cognitive functioning of teachers so that they begin to move from the concrete operational level of development toward the formal operational level in their preactive teaching behavior. The three basic kinds of preactive skills identified were skills in generating alternatives, skills in selecting among alternatives, and skills in altering existing circumstances. Specific behavioral objectives subsumed to each of these skills were presented. The instructional processes suggested to achieve these goals would capitalize on the developmental processes of socialization and equilibration. The types of training

BEST COPY AVAILABLE

materials to be developed to implement these processes would provide background information on new instructional alternatives, simulated data on the givens affecting instructional decision-making, and peer interaction regarding contradictory instructional decisions.